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Mammals of the Harte Ranch Area of Big Bend National Park, Brewster County, Texas

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Abstract

A three-year study (1990-1992) on the mammals of the Harte Ranch area of Big Bend National Park was conducted. Forty-two species of mammals were documented to occur in this area. Descriptive accounts are presented for each species, which include comments regarding distribution, relative abundance, habitat preference, and reproductive biology. The mammalian diversity of the Harte Ranch area in comparison to other areas in the region is discussed.

Key words: Big Bend National Park, Harte Ranch, mammalian diversity, Rosillos Mountains.

Introduction and Methods

For a total of almost three years, we studied the biodiversity of mammals on the Harte Ranch area of Big Bend National Park. The Harte Ranch area is about 75,000 acres in size, and is located in the northwestern portion of Big Bend National Park. It is situated west of Persimmon Gap Ranger Station, north of the Pitcock-Rosillos Ranch, and east of Terlingua Ranch.

This survey of mammals of the Harte Ranch area was carried out in accordance with the work of a unique Research Consortium organized by Dr. Milford Fletcher (National Park Service) and Dr. David Schmidly (then of Texas A&M University). We made every effort to coordinate our field activities with those of the other members of the Research Consortium, which included surveys of invertebrates, amphibians, reptiles, birds, and plant communities.

Our major objectives were to determine the kinds of extant mammals on Harte Ranch, and to sample and observe mammals in as many of the microhabitats throughout the geographic area as possible. We employed standard methods of capturing and monitoring mammals as described by Jones et al. (1996). We concentrated our efforts on the use of Sherman live traps (over 10,000 trap-nights) which allowed for the release of animals captured that were not needed as voucher specimens. All field research activities were conducted in the most discrete manner possible in consideration of the sensitivities of the local human population in the region.

RESULTS

During our field research, 66 specific localities within the Harte Ranch section of Big Bend National Park were sampled (Table 1). These sampling data, supplemented with a variety of observational data, resulted in the documentation of 42 species of mammals at Harte Ranch (Table 2).

In the accounts that follow, 42 species of mammals that are known to occur on the Harte Ranch section of Big Bend National Park are treated. Although ordinal and familial headings are not utilized here, they are presented in Table 2. Accounts are presented in the currently accepted phylogenetic sequence through genera; species are arranged alphabetically within each genus. Scientific and vernacular names of taxa follow Manning and Jones (1998) and Baker et al. (2003). Linear measurements in these accounts are in millimeters. Specimens listed are deposited in the Collection of Recent Mammals at the Museum of Texas Tech University.

Myotis yumanensis yumanensis
(H. Allen 1864)

Only two specimens of *Yuma myotis* were obtained during this study. Both bats were captured in mist nets placed over water. According to Schmidly (1991), this bat usually forages near open water in lowland habitats. Testes of these bats, captured on 8 and 10 November, measured 1 x 1 and 3 x 1, respectively.

Specimens examined (2).—Mountain Lodge, Harte Ranch, 1; 0.6 mi. S, 1.5 mi. E Key Place, Harte Ranch, 1.

Pipistrellus hesperus maximus
Hatfield 1936

The western pipistrelle was the most common bat encountered during this study. Although specimens were obtained by use of mist nets set over water at only two localities, these mammals were observed flying about at dusk and dawn at numerous places in the study area, especially along roads and adjacent to Chalk Ridge. A female examined on 19 May contained two embryos (crown-rump length, 11); lactating females were collected on 19-21 July. Measurements of testes of males obtained in July and August ranged from 2 x 2 to 4 x 4; in October and November, testes of males measured from 1 x 1 to 3 x 2. Volant young-of-the-year pipistrelles were captured on 19-21 July.

Specimens examined (49). Mountain Lodge, Harte Ranch, 48; Cedar Creek, 0.75 mi. E Twin Peaks, Harte Ranch, 1.

Eptesicus fuscus pallidus
Young 1908

A lactating female was captured on 20 July in a mist net placed over water. In the Big Bend of Texas, female big brown bats inhabit lowland areas during the summer months (Schmidly 1991).

Specimens examined (1).—Mountain Lodge, Harte Ranch, 1.

Lasiurus cinereus cinereus
(Palisot de Beauvois 1796)

On two occasions during the night of 10 November, a hoary bat was observed in a mist net set over water; the bat escaped before it could be retrieved. According to Schmidly (1991) this species is restricted mostly to wooded, montane areas of the Big Bend.

Specimens examined (0).

Corynorhinus townsendii pallescens
(Miller 1897)

Two specimens of Townsend's big-eared bat were obtained during this study. A male, taken from inside a building on 8 November, had testes that measured 4 x 2. A non-gravid female was netted over water on 8 November.

Specimens examined (2).—Key Place, Harte Ranch, 1; 0.6 mi. S, 1.5 mi. E Key Place, Harte Ranch, 1.

Table 1.— Gazeteer of geographic localities, Harte Ranch, Big Bend National Park.

1. Mountain Lodge, Harte Ranch
2. 1 mi. N Mountain Lodge, Harte Ranch
3. 0.75 mi. N Mountain Lodge, Harte Ranch
4. 0.25 mi. N, 2.25 mi. W Mountain Lodge, Harte Ranch
5. 0.5 mi. N, 2 mi. W Mountain Lodge, Harte Ranch
6. 0.3 mi. N, 2 mi. W Mountain Lodge, Harte Ranch
7. 0.5 mi. N, 1.5 mi. W Mountain Lodge, Harte Ranch
8. 0.5 mi. N, 0.1 mi. W Mountain Lodge, Harte Ranch
9. 1.75 mi. N, 2.75 mi. E Mountain Lodge, Harte Ranch
10. 2.1 mi. N, 3.2 mi. E Mountain Lodge, Harte Ranch
11. 1.75 mi. N, 1.5 mi. E Mountain Lodge, Harte Ranch
12. 1.5 mi. N, 2 mi. E Mountain Lodge, Harte Ranch
13. 1.5 mi. N, 0.5 mi. E Mountain Lodge, Harte Ranch
14. 1.5 mi. N, 0.75 mi. E Mountain Lodge, Harte Ranch
15. 1.25 mi. N, 1 mi. E Mountain Lodge, Harte Ranch
16. 1 mi. N, 0.5 mi. E Mountain Lodge, Harte Ranch
17. 2.5 mi. W Mountain Lodge, Harte Ranch
18. 0.5 mi. S Mountain Lodge, Harte Ranch
19. 0.5 mi. S, 2.5 mi. W Mountain Lodge, Harte Ranch
20. 1 mi. S, 2.5 mi. W Mountain Lodge, Harte Ranch
21. 1.25 mi. S, 2.5 mi. W Mountain Lodge, Harte Ranch
22. 1.25 mi. S, 2.75 mi. W Mountain Lodge, Harte Ranch
23. 1.5 mi. S, 2.75 mi. W Mountain Lodge, Harte Ranch
24. 2 mi. S, 0.5 mi. E Mountain Lodge, Harte Ranch
25. 1.3 mi. N Mountain Lodge, Harte Ranch
26. 1.5 mi. N, 0.4 mi. E Mountain Lodge, Harte Ranch
27. 0.4 mi. N, 1 mi. W Mountain Lodge, Harte Ranch
28. 2.5 mi. N, 4 mi. W Mountain Lodge, Harte Ranch
29. 1.3 mi. N, 4 mi. W Mountain Lodge, Harte Ranch
30. 1.1 mi. S, 3.8 mi. W Mountain Lodge, Harte Ranch
31. Key Place, Harte Ranch
32. 1.5 mi. N, 2.6 mi. E Key Place, Harte Ranch
33. 0.4 mi. N, 0.8 mi. E Key Place, Harte Ranch
34. 0.4 mi. N, 1.2 mi. E Key Place, Harte Ranch
35. 0.25 mi. N Key Place, Harte Ranch
36. 0.25 mi. N, 0.25 mi. E Key Place, Harte Ranch
37. 0.5 mi. S, 1.5 mi. E Key Place, Harte Ranch
38. 0.6 mi. S, 1.5 mi. E Key Place, Harte Ranch
39. Headquarters, Harte Ranch
40. 2.5 mi. N, 1 mi. W Headquarters, Harte Ranch
41. 0.25 mi. N, 1 mi. W Headquarters, Harte Ranch
42. 0.25 mi. N, 1 mi. E Headquarters, Harte Ranch
43. 1.25 mi. W Headquarters, Harte Ranch
44. 1.25 mi. E Headquarters, Harte Ranch
45. 0.75 mi. S Headquarters, Harte Ranch
46. 0.5 mi. N, 1.4 mi. W Headquarters, Harte Ranch
47. 0.1 mi. W Airstrip Lodge, Harte Ranch
48. 2.2 mi. N, 7.25 mi. W Persimmon Gap Ranger Station, Harte Ranch
49. 4 mi. S Persimmon Gap Ranger Station, Harte Ranch
50. 4 mi. S, 0.5 mi. E Persimmon Gap Ranger Station, Harte Ranch
51. 4 mi. S, 1 mi. E Persimmon Gap Ranger Station, Harte Ranch
52. 4 mi. S, 2 mi. W Persimmon Gap Ranger Station, Harte Ranch
53. 4 mi. S, 0.5 mi. W Persimmon Gap Ranger Station, Harte Ranch
54. 4.25 mi. S, 1.75 mi W Persimmon Gap Ranger Station, Harte Ranch
55. 4.25 mi. S, 1.25 mi. W Persimmon Gap Ranger Station, Harte Ranch
56. 5 mi. S, 2.5 mi. W Persimmon Gap Ranger Station, Harte Ranch
57. 2.2 mi. N, 6.3 mi. W Persimmon Gap Ranger Station, Harte Ranch
58. Coyote Tank, 0.25 mi. N, 6.6 mi. W Persimmon Gap Ranger Station, Harte Ranch
59. Northwest Windmill, 1 mi. N, 7 mi. W Persimmon Gap Ranger Station, Harte Ranch
60. Crazy Windmill, 0.7 mi. S, 3.2 mi. W Mountain Lodge, Harte Ranch
61. Southeast Windmill, 5.1 mi S, 0.5 mi. E Persimmon Gap Ranger Station, Harte Ranch
62. Buttrill Spring, Harte Ranch
63. 0.1 mi. N, 1.5 mi. E Twin Peaks, Harte Ranch
64. Cedar Creek, 0.75 mi. E Twin Peaks, Harte Ranch
65. Cedar Creek, 0.8 mi. S, 0.4 mi. E Twin Peaks, Harte Ranch
66. Rosillos Peak, Harte Ranch

Table 2.— Checklist of mammals known to occur on the Harte Ranch section of Big Bend National Park.

Order Chiroptera — Bats
- Family Vespertilionidae (vespertilionid bats)
  - *Myotis yumanensis* (Yuma myotis)
  - *Pipistrellus hesperus* (western pipistrelle)
  - *Eptesicus fuscus* (big brown bat)
  - *Lasiurus cinereus* (hoary bat)
  - *Corynorhinus townsendii* (Townsend's big-eared bat)
  - *Antrozous pallidus* (pallid bat)
- Family Molossidae (free-tailed bats)
  - *Tadarida brasiliensis* (Brazilian free-tailed bat)

Order Lagomorpha — Lagomorphs
- Family Leporidae (hares and rabbits)
  - *Sylvilagus audubonii* (desert cottontail)
  - *Lepus californicus* (black-tailed jackrabbit)

Order Rodentia — Rodents
- Family Sciuridae (squirrels and allies)
  - *Ammospermophilus interpres* (Texas antelope squirrel)
  - *Spermophilus spilosoma* (spotted ground

Table 2. (cont.)

squirrel)
Spermophilus variegatus (rock squirrel)
Family Geomyidae (pocket gophers)
Cratogeomys castanops (yellow-faced pocket gopher)
Family Heteromyidae (pocket mice and kangaroo rats)
Perognathus flavus (silky pocket mouse)
Chaetodipus eremicus (Chihuahuan Desert pocket mouse)
Chaetodipus nelsoni (Nelson's pocket mouse)
Dipodomys merriami (Merriam's kangaroo rat)
Dipodomys ordii (Ord's kangaroo rat)
Family Muridae (mice and rats)
Reithrodontomys megalotis (western harvest mouse)
Peromyscus boylii (brush mouse)
Peromyscus eremicus (cactus mouse)
Peromyscus leucopus (white-footed mouse)
Peromyscus maniculatus (deer mouse)
Peromyscus pectoralis (white-ankled mouse)
Onychomys arenicola (Mearns' grasshopper mouse)
Sigmodon hispidus (hispid cotton rat)
Neotoma mexicana (Mexican woodrat)
Neotoma micropus (southern plains woodrat)
Family Erethizontidae (New World porcupines)
Erethizon dorsatum (porcupine)

Order Carnivora — Carnivores
Family Canidae (canids)
Canis latrans (coyote)
Urocyon cinereoargenteus (common gray fox)
Family Procyonidae (procyonids)
Bassariscus astutus (ringtail)
Procyon lotor (common raccoon)
Family Mustelidae (mustelids)
Mustela frenata (long-tailed weasel)
Family Mephitidae (skunks)
Mephitis mephitis (striped skunk)
Family Felidae (cats)
Felis concolor (mountain lion)
Lynx rufus (bobcat)

Order Artiodactyla — Even-toed Ungulates
Family Dicotylidae (peccaries)
Tayassu tajacu (collared peccary)
Family Cervidae (cervids)
Cervus elaphus (elk)
Odocoileus hemionus (mule deer)
Family Antilocapridae (pronghorn)
Antilocapra americana (pronghorn)
Family Bovidae (bovids)
Ammotragus lervia (Barbary sheep)

Antrozous pallidus pallidus
(Le Conte 1856)

The pallid bat was found commonly from March through September during this study, especially in association with man-made structures and open water. Before the collapse of the structure, the old adobe house at the former headquarters of the Harte Ranch was an important night roost for these bats. Pregnant females (embryo crown-rump length, 23-26) were obtained on 19 and 22 May, respectively. Lactating females were present on 19-21 July. Testes of a male captured in March measured 5 x 3; bats obtained in May had testes that ranged in size from 2 x 1 to 6 x 2. A male examined in August had testes that measured 9 x 5. Volant young-of-the-year pallid bats were present in July and August.

Specimens examined (22).—Mountain Lodge, Harte Ranch, 17; Key Place, Harte Ranch, 2; Headquarters, Harte Ranch, 3.

Tadarida brasiliensis mexicana
(Saussure 1860)

Brazilian free-tailed bats were captured in mist nets set over water from March through November. As a result of the well-known segregation of sexes in these bats, females were obtained only in March (3), October (2), and November (1). Measurements of testes of males ranged from 2 x 1 to 6 x 3; animals with the larger testes were obtained in September, October, and November.

Specimens examined (59).—Mountain Lodge, Harte Ranch, 59.

Sylvilagus audubonii minor
(Mearns 1896)

On the Harte Ranch, the desert cottontail is found primarily in xeric lowlands, especially in Nine Point Draw and its tributaries. It seems that these mammals are especially wary in the area; they are not found far from cover. Desert cottontails were rare during the first two years of this study. However, in May and June of 1992, they were abundant, and many young animals were observed. Lactating females were taken in March, May, and August. A female with six fetuses (crown-rump length, 35), one with three fetuses (crown-rump length, 12), and a female with two fetuses (crown-rump length, 55) were collected in March, May, and August, respectively. Testes of males collected in March through November measured from 27 x 17 to 50 x 20. A male taken on 8 November exhibited fresh winter pelage.

Specimens examined (12).—Mountain Lodge, Harte Ranch, 2; 1 mi. N Mountain Lodge, Harte Ranch, 2; 1.3 mi. N Mountain Lodge, Harte Ranch, 1; 0.5 mi. N, 1.5 mi. W Mountain Lodge, Harte Ranch, 1; 1.25 mi. N, 1 mi. E Mountain Lodge, Harte Ranch, 1; 1.5 mi. N, 0.4 mi. E Mountain Lodge, Harte Ranch, 1; 1.5 mi. N, 0.5 mi. E Mountain Lodge, Harte Ranch, 1; 1.75 mi. N, 1.5 mi. E Mountain Lodge, Harte Ranch, 1; 0.25 mi. N Key Place, Harte Ranch, 1; 4 mi. S Persimmon Gap Ranger Station, Harte Ranch, 1.

Lepus californicus texianus
Waterhouse 1848

The black-tailed jackrabbit is a widespread and often common inhabitant of the study area, especially in open creosote bush and mesquite grasslands. Although no precise census data are available, it seems that this hare was increasing in numbers in the area during the last year of our study. Reproductive data gathered on *L. californicus* included a female with one fetus (crown-rump length, 28) collected in July, one with three fetuses (crown-rump length, 40) obtained in August, and a female containing two fetuses (crown-rump length, 38) examined in September. Lactating females were collected in March, July, and August. Testes of adult males measured in June were 42 x 19, whereas males collected in August had testes that were 25 x 10, 28 x 8, and 50 x 18, respectively.

Specimens examined (18).—Mountain Lodge, Harte Ranch, 1; 1 mi. N Mountain Lodge, Harte Ranch, 2; 0.25 mi. N, 2.25 mi. W Mountain Lodge, Harte Ranch, 1; 1.5 mi. S, 2.75 mi. W Mountain Lodge, Harte Ranch, 1; 1.5 mi. N, 2 mi. E Mountain Lodge, Harte Ranch, 1; 1.75 mi. N, 2.75 mi. E Mountain Lodge, Harte Ranch, 1; 0.5 mi. S, 1.5 mi. E Key Place, Harte Ranch, 1; 0.25 mi. N Key Place, Harte Ranch, 1; 1.5 mi. N, 2.6 mi. E Key Place, Harte Ranch, 1; Headquarters, Harte Ranch, 3; 0.7 mi. N Headquarters, Harte Ranch, 1; 4.25 mi. S, 1.25 mi. W Persimmon Gap Ranger Station, Harte Ranch, 1; 4 mi. S, 2 mi. W Persimmon Gap Ranger Station, Harte Ranch, 1; 4 mi. S Persimmon Gap Ranger Station, Harte Ranch, 1; 4 mi. S, 0.5 mi. E Persimmon Gap Ranger Station, Harte Ranch, 1.

Ammospermophilus interpres
(Merriam 1890)

The Texas antelope squirrel is not common on the Harte Ranch. Animals were observed on several occasions along the road in the vicinity of Key Place, and near the western boundary of the area, but none were collected. As with several other kinds of mammals in the area, we were impressed with the wariness exhibited by this species.

Specimens examined (0).

Spermophilus spilosoma marginatus
Bailey 1890

Spotted ground squirrels occur predominantly in habitats on coarse, sandy-gravelly soils in the area. These animals also are wary; they seldom ventured far from cover of shrubs and grasses. Information obtained on reproduction in this species includes females collected in September with four and seven placental scars, respectively. A male obtained in May had testes that measured 22 x 13; measurements of testes of an animal collected in September were 13 x 7. A male examined on 21 May exhibited distinct molting of the pelage. Some of these ground squirrels taken in September and October had extensive deposits of fat.

Specimens examined (8).—0.5 mi. S, 2.5 mi. W Mountain Lodge, Harte Ranch, 1; 2.1 mi. N, 3.2 mi. E Mountain Lodge, Harte Ranch, 1; 0.25 mi. N, 0.25

mi. E Key Place, Harte Ranch, 3; 0.4 mi. N, 0.2 mi. E Key Place, Harte Ranch, 1; 0.4 mi. N, 0.8 mi. E Key Place, Harte Ranch, 1; 0.4 mi. N, 1.2 mi. E Key Place, Harte Ranch, 1.

Spermophilus variegatus grammurus
(Say 1823)

Rock squirrels were observed in the vicinity of Buttrill Spring and on rocky outcrops on the western slopes of the Rosillos Mountains, however no specimens of this taxon were collected. In addition to being uncommon in the area, these squirrels were extremely wary.

Specimens examined (0).

Cratogeomys castanops clarkii
(Baird 1855)

Yellow-faced pocket gophers were found in deep, sandy soils of the lowlands in the western portion of the study area. In addition these animals were located in shallow, rocky soils in the vicinity of Mountain Lodge. Schmidly (1977) reported that these gophers require topsoils of a depth of seven to eight inches, suggesting that *C. castanops* should be distributed more widely in the area than our records indicate. A female obtained in September contained three fetuses (crown-rump length, 49). Measurements of testes of a male collected in November were 7 x 5. Animals taken in May, September, and November exhibited evidence of molting.

Specimens examined (5).—Mountain Lodge, Harte Ranch, 2; 0.75 mi. N Mountain Lodge, Harte Ranch, 1; 1 mi. S, 2.5 mi. W Mountain Lodge, Harte Ranch, 1; 1.25 mi. S, 2.5 mi. W Mountain Lodge, Harte Ranch, 1.

Perognathus flavus gilvus
Osgood 1900

The silky pocket mouse was one of the more common small rodents encountered throughout the study area. Although not especially abundant in any given place at any given time, this heteromyid was obtained in numerous habitats on both sandy and rocky substrates during the course of this study. Our perceptions of the habitat preferences of this rodent coincide with those determined by Porter (1962). Pregnant females were taken in March (4 fetuses, crown-rump length, 7), July (3 fetuses, crown-rump length, 4), and August (6 fetuses, crown-rump length, 3; 3 fetuses, crown-rump length, 5; 4 fetuses, crown-rump length, 10; 3 fetuses, crown-rump length, 11; 4 fetuses, crown-rump length, 12; 2 fetuses, crown-rump length, 18). Lactating females also were collected in August. Measurements of testes of males taken in various months were recorded as follows: March, 4 x 2; May, 6 x 3; July, 2 x 2, 3 x 2, 5 x 4, 7 x 4; August, 2 x 1, 2 x 2, 4 x 2, 4 x 3; November, 2 x 1. Animals undergoing seasonal molt were examined in July and August.

Specimens examined (64).—Mountain Lodge, Harte Ranch, 7; 2.5 mi. N, 4 mi. W Mountain Lodge, Harte Ranch, 2; 1.3 mi. N, 4 mi. W Mountain Lodge, Harte Ranch, 1; 1.25 mi. S, 2.75 mi. W Mountain Lodge, Harte Ranch, 9; 1.5 mi. S, 2.75 mi. W Mountain Lodge, Harte Ranch, 1; 1.1 mi. S, 3.8 mi. W Mountain Lodge, Harte Ranch, 6; 1 mi. N, 0.5 mi. E Mountain Lodge, Harte Ranch, 4; 0.5 mi. S, 1.5 mi. E Key Place, Harte Ranch, 2; Headquarters, Harte Ranch, 1; 0.25 mi. N, 1 mi. E Headquarters, Harte Ranch, 1; 0.5 mi. N, 1.4 mi. W Headquarters, Harte Ranch, 1; 4 mi. S Persimmon Gap Ranger Station, Harte Ranch, 1; 4 mi. S, 1 mi. E Persimmon Gap Ranger Station, Harte Ranch, 2; 4 mi. S, 0.5 mi. E Persimmon Gap Ranger Station, Harte Ranch, 1; 4.25 mi. S, 1.25 mi. E Persimmon Gap Ranger Station, Harte Ranch, 9; Southeast Windmill, 5 mi. S, 0.5 mi. E Persimmon Gap Ranger Station, Harte Ranch, 1; 0.1 mi. N, 1.5 mi. E Twin Peaks, Harte Ranch, 4; Cedar Creek, 0.75 mi. E Twin Peaks, Harte Ranch, 10; Cedar Creek, 0.8 mi. S, 0.4 mi. E Twin Peaks, Harte Ranch, 1.

Chaetodipus eremicus
(Mearns 1898)

In accordance with the preferences of habitats of these pocket mice reported by Porter (1962), we found the Chihuahuan Desert pocket mouse in all kinds of vegetation in habitats on rock-free, sandy soils (and occasionally on gravel) where we sampled mammals during this study. This mouse was the most abundant heteromyid collected during our fieldwork at Harte Ranch. Females carrying fetuses were obtained in

March (3 fetuses, crown-rump length, 1.5; 5 fetuses, crown-rump length, 6), May (6 fetuses, crown-rump length, 4), June (8 fetuses, crown-rump length, 2; 6 fetuses, crown-rump length, 7), July (2 fetuses, crown-rump length, 3), August (4 fetuses, crown-rump length, 5; 4 fetuses, crown-rump length, 12; 3 fetuses, crown-rump length, 21), September (4 fetuses, crown-rump length, 10), and November (3 fetuses, crown-rump length, 13). Ranges of measurements of testes of males were recorded as follows: March, 7 x 4 - 11 x 6; June, 3 x 2 - 8 x 4; July, 3 x 1 - 7 x 3; August, 6 x 4 - 10 x 4; September, 4 x 2 - 6 x 3; November, 3 x 1, 4 x 1. Molting was noted in specimens obtained during July and August.

Specimens examined (179).—Mountain Lodge, Harte Ranch, 5; 1.5 mi. S, 2.75 mi. W Mountain Lodge, Harte Ranch, 51; 0.5 mi. N, 2 mi. W Mountain Lodge, Harte Ranch, 1; 2.5 mi. N, 4 mi. W Mountain Lodge, Harte Ranch, 2; 1.3 mi. N, 4 mi. W Mountain Lodge, Harte Ranch, 4; 2.5 mi. W Mountain Lodge, Harte Ranch, 3; Crazy Windmill, 0.7 mi. S, 3.2 mi. W Mountain Lodge, Harte Ranch, 2; 1 mi. N, 0.5 mi. E Mountain Lodge, Harte Ranch, 2; 1.5 mi. N, 0.5 mi. E Mountain Lodge, Harte Ranch, 1; 1 mi. N, 0.5 mi. E Mountain Lodge, Harte Ranch, 3; Headquarters, Harte Ranch, 4; 0.25 mi. N Headquarters, Harte Ranch, 2; 0.75 mi. N Headquarters, Harte Ranch, 6; 1.25 mi. E Headquarters, Harte Ranch, 14; 2.5 mi. N, 1 mi. W Headquarters, Harte Ranch, 6; Buttrill Spring, Harte Ranch, 3; 0.1 mi. W Airstrip Lodge, Harte Ranch, 1; Key Place, Harte Ranch, 1; 0.5 mi. S, 1.5 mi. E Key Place, Harte Ranch, 7; 1.4 mi. S, 3.4 mi. E Key Place, Harte Ranch, 5; Bone Spring, Harte Ranch, 1; 4 mi. S Persimmon Gap Ranger Station, Harte Ranch, 6; 4 mi. S, 0.5 mi. W Persimmon Gap Ranger Station, Harte Ranch, 1; 4.25 mi. S, 1.25 mi. W Persimmon Gap Ranger Station, Harte Ranch, 1; 4.25 mi. S, 1.75 mi. W Persimmon Gap Ranger Station, Harte Ranch, 8; 5 mi. S, 2.5 mi. W Persimmon Gap Ranger Station, Harte Ranch, 8; 2.2 mi. N, 7.25 mi. W Persimmon Gap Ranger Station, Harte Ranch, 6; North Windmill, 1 mi. N, 7 mi. W Persimmon Gap Ranger Station, Harte Ranch, 2; 2.2 mi. N, 6.3 mi. W Persimmon Gap Ranger Station, Harte Ranch, 4; Coyote Tank, 0.25 mi. N, 6.6 mi. W Persimmon Gap Ranger Station, Harte Ranch, 7; 4 mi. S, 0.5 mi. E Persimmon Gap Ranger Station, Harte Ranch, 2; 4 mi. S, 1 mi. E Persimmon Gap Ranger Station, Harte Ranch, 5; Southeast Windmill, 5.1 mi. S, 0.5 mi. E Persimmon Gap Ranger Station, Harte Ranch, 3; Cedar Creek, 0.8 mi. S, 0.4 mi. E Twin Peaks, Harte Ranch, 2.

Chaetodipus nelsoni canescens
(Merriam 1904)

Nelson's pocket mouse occurs in habitats on gravelly and rocky substrates within the study area. Precise habitats of this heteromyid in the Big Bend area were described in detail by Porter (1962). We found pregnant females of this species only in June (3 fetuses, crown-rump length, 5; 4 fetuses, crown-rump length, 8) and August (5 fetuses, crown-rump length, 8). Testes of males taken through the year were measured as follows: March, 8 x 4; May, 12 x 6; June, 8 x 4; July, 11 x 4, 9 x 4, 8 x 3; August, 3 x 1, 4 x 2, 5 x 2; September, 5 x 2; November, 4 x 2, 6 x 3, 6 x 4. Young-of-the-year were collected in July and August. Based on examination of specimens obtained, molting of pelage seemingly takes place in late summer (July, August).

Specimens examined (121).—Mountain Lodge, Harte Ranch, 25; 0.5 mi. N, 0.1 mi. W Mountain Lodge, Harte Ranch, 10; 0.3 mi. N, 2 mi. W Mountain Lodge, Harte Ranch, 7; 1 mi. N Mountain Lodge, Harte Ranch, 1; 2.5 mi. N, 4 mi. W Mountain Lodge, Harte Ranch, 1; 2 mi. S, 0.5 mi. E Mountain Lodge, Harte Ranch, 7; Buttrill Spring, Harte Ranch, 33; 0.5 mi. S, 1.5 mi. E Key Place, Harte Ranch, 11; 1.4 mi. S, 3.4 mi. E Key Place, Harte Ranch, 5; 0.5 mi. N, 1.5 mi. W Headquarters, Harte Ranch, 7; 4.25 mi. S, 1.25 mi. W Persimmon Gap Ranger Station, Harte Ranch, 1; 4 mi. S, 0.5 mi. E Persimmon Gap Ranger Station, Harte Ranch, 1; 4 mi. S, 1 mi. E Persimmon Gap Ranger Station, 1; 0.1 mi. N, 1.5 mi. E Twin Peaks, Harte Ranch, 4; Cedar Creek, 0.75 mi. E Twin Peaks, Harte Ranch, 3; Cedar Creek, 0.8 mi. E, 0.4 mi. S Twin Peaks, Harte Ranch, 4.

Dipodomys merriami ambiguus
Merriam 1890

Merriam's kangaroo rat was associated most commonly with gravelly and rocky soils, but with a wide array of types of vegetation. Reproductive data gathered on this species included pregnant females taken in March (3 fetuses, crown-rump length, 12),

May (2 fetuses, crown-rump length, 6), July (2 fetuses, crown-rump length, 15), August (2 fetuses, crown-rump length, 29; 4 fetuses, crown-rump length, 4; 3 fetuses, crown-rump length, 3), September (3 fetuses, crown-rump length, 17), October (2 fetuses, crown-rump length, 6), and November (3 fetuses, crown-rump length, 10; 2 fetuses, crown-rump length, 14). Like females, males exhibited reproductive activity throughout most of the year; some measurements of testes were as follows: March (15 x 8; 10 x 4), July (11 x 6; 12 x 6), August (11 x 6), September (14 x 7; 10 x 5), October (16 x 8), November (11 x 6; 15 x 5). Young-of-the-year Merriam's kangaroo rats were collected in August. It is of interest that one of the young *D. merriami* obtained in August had cheeks and the entire venter covered with yellow pollen. Seeds, as well as insects and green vegetation, are the major food items of this rat (Schmidly 1977).

Specimens examined (88).—Mountain Lodge, Harte Ranch, 5; 1.5 mi. S, 2.75 mi. W Mountain Lodge, Harte Ranch, 18; 0.25 mi. N, 2.25 mi. W Mountain Lodge, Harte Ranch, 2; 1.3 mi. N, 4 mi. W Mountain Lodge, Harte Ranch, 2; 2.5 mi. N, 4 mi. W Mountain Lodge, Harte Ranch, 3; 0.3 mi. N, 2 mi. W Mountain Lodge, Harte Ranch, 1; 1.1 mi. S, 3.8 mi. W Mountain Lodge, Harte Ranch, 5; 1 mi. N, 0.5 mi. E Mountain Lodge, Harte Ranch, 2; Headquarters, Harte Ranch, 1; 2.5 mi. N, 1 mi. W Headquarters, Harte Ranch, 2; 0.25 mi. N, 1 mi. E Headquarters, Harte Ranch, 2; 1.25 mi E Headquarters, Harte Ranch, 2; 0.5 mi. S, 1.5 mi. E Key Place, Harte Ranch, 2; 1.4 mi. S, 3.4 mi. E Key Place, Harte Ranch, 1; 4 mi. S Persimmon Gap Ranger Station, Harte Ranch, 7; 4 mi. S, 0.5 mi. E Persimmon Gap Ranger Station, Harte Ranch, 9; 4 mi. S, 1 mi. E Persimmon Gap Ranger Station, Harte Ranch, 4; 4.25 mi. S, 1.25 mi. W Persimmon Gap Ranger Station, Harte Ranch, 1; 5 mi. S, 2.5 mi. W Persimmon Gap Ranger Station, Harte Ranch, 4; 4 mi. S, 0.5 mi. W Persimmon Gap Ranger Station, Harte Ranch, 1; 2.2 mi. N, 7.25 mi. W Persimmon Gap Ranger Station, Harte Ranch, 2; Coyote Tank, 0.25 mi. N, 6.6 mi. W Persimmon Gap Ranger Station, Harte Ranch, 3; 2.2 mi. N, 6.3 mi. W Persimmon Gap Ranger Station, Harte Ranch, 3; 0.1 mi. N, 1.5 mi. E Twin Peaks, Harte Ranch, 2; Cedar Creek, 0.75 mi. E Twin Peaks, Harte Ranch, 4.

Dipodomys ordii obscurus
(J. A. Allen 1903)

Ord's kangaroo rat was not common during the tenure of our work on Harte Ranch. This rat was encountered only on sandy soils associated with arroyos and roads. Females carrying fetuses were obtained only in August (3 fetuses, crown-rump length, 5; 3 fetuses, crown-rump length, 6; 2 fetuses, crown-rump length, 28). Ranges of measurements of testes of males taken were recorded as follows: May, 10 x 6; August, 6 x 4 - 12 x 7; September, 9 x 3 - 16 x 10. A juvenile *D. ordii* was taken in July. Some animals examined in August exhibited molting of pelage.

Specimens examined (20).—1.25 mi. S, 2.75 mi. W Mountain Lodge, Harte Ranch, 10; 1.5 mi. S, 2.75 mi. W Mountain Lodge, Harte Ranch, 3; 1.1 mi. S, 3.8 mi. W Mountain Lodge, Harte Ranch, 2; 0.3 mi. N, 2 mi. W Mountain Lodge, Harte Ranch, 1; 1.3 mi. N, 4 mi. W Mountain Lodge, Harte Ranch, 2; 0.4 mi. N, 1.2 mi. E Key Place, Harte Ranch, 1; Southeast Windmill, 5.1 mi. S, 0.5 mi. E Persimmon Gap Ranger Station, Harte Ranch, 1.

Reithrodontomys megalotis megalotis
(Baird 1858)

The western harvest mouse was encountered rather sporadically in the area during this study. This rodent preferred habitats in lowlands, with rank vegetation that provides a rather thick thatch of ground cover. Harvest mice were most common in areas adjacent to earthen tanks and catch basins where water periodically accumulated. Gravid females were recorded in March (3 fetuses, crown-rump length, 20), September (4 fetuses, crown-rump length, 4; 7 fetuses, crown-rump length, 3), and October (4 fetuses, crown-rump length, 4). Some measurements of testes of males were recorded as follows: March, 6 x 3, 8 x 3, 7 x 3, 4 x 2; June, 7 x 3, 7 x 4, 5 x 3; September, 10 x 5, 9 x 5, 5 x 2; October, 3 x 2, 4 x 2.

Specimens examined (30).—Buttrill Spring, Harte Ranch, 1; Crazy Windmill, 0.7 mi. S, 3.2 mi. W Mountain Lodge, Harte Ranch, 2; 0.25 mi. N, 1 mi. E

Headquarters, Harte Ranch, 3; 1.25 mi. E Headquarters, Harte Ranch, 2; 0.75 mi. S Headquarters, Harte Ranch, 1; North Windmill, 1 mi. N, 7 mi. W Persimmon Gap Ranger Station, Harte Ranch, 4; 4.25 mi. S, 1.75 mi. W Persimmon Gap Ranger Station, Harte Ranch, 5; 2.2 mi. N, 6.3 mi. W Persimmon Gap Ranger Station, Harte Ranch, 7; Coyote Tank, 0.25 mi. N, 6.6 mi. W Persimmon Gap Ranger Station, Harte Ranch, 5.

Peromyscus boylii rowleyi
(J. A. Allen 1893)

The brush mouse was the least common member of the genus *Peromyscus* that was encountered during our study. This species was found only in dense, brushy vegetation in the bottom of the ravine adjacent to the outflow from Buttrill Spring. An adult female had 3 fetuses (crown-rump length, 21). An adult male had testes that measured 13 x 7. One subadult exhibited molting of the pelage.

Specimens examined (5).—Buttrill Spring, Harte Ranch, 5.

Peromyscus eremicus eremicus
(Baird 1858)

The cactus mouse was the most common of all members of the genus *Peromyscus* present in the study area. The preferred habitats of this species were slopes with large rocks, cacti, shrubs, and grasses. It is of interest to note that a large number of these mice were taken from within the man-made structure at Mountain Lodge. Information on reproduction of cactus mice includes the following: females collected in March contained from 2 to 4 fetuses (crown-rump length, 3 - 12); May, 3 fetuses (crown-rump length, 5); July, 2 fetuses (crown-rump length, 5 - 18); August, 2 to 4 fetuses (crown-rump length, 3 - 18); September, 2 to 3 fetuses (crown-rump length, 3 - 13); and November, 3 to 4 fetuses (crown-rump length, 6 - 9). Males were reproductively active in all months of the year; measurements of testes ranged from 8 x 3 to 10 x 6. Neonates were found in nests in March and August. Molting of pelage was observed in specimens obtained from August through October.

Specimens examined (106).—Mountain Lodge, Harte Ranch, 39; 0.5 mi. N, 2 mi. W Mountain Lodge, Harte Ranch, 1; 0.3 mi. N, 2 mi. W Mountain Lodge, Harte Ranch, 6; 2.5 mi. N, 4 mi. W Mountain Lodge, Harte Ranch, 5; 1.1 mi. S, 3.8 mi. W Mountain Lodge, Harte Ranch, 3; 2 mi. S, 0.5 mi. W Mountain Lodge, Harte Ranch, 3; Buttrill Spring, Harte Ranch, 2; 0.1 mi. W Airport Lodge, Harte Ranch, 7; Headquarters, Harte Ranch, 1; 2.5 mi. N, 1 mi. W Headquarters, Harte Ranch, 2; 0.5 mi. N, 1.4 mi. W Headquarters, Harte Ranch, 2; 0.25 mi. N, 1 mi. E Headquarters, Harte Ranch, 1; 0.5 mi. S, 1.5 mi. E Key Place, Harte Ranch, 5; 4 mi. S Persimmon Gap Ranger Station, Harte Ranch, 3; 4 mi. S, 0.5 mi. E Persimmon Gap Ranger Station, Harte Ranch, 2; 4.25 mi. S, 1.25 mi. W Persimmon Gap Ranger Station, Harte Ranch, 4; 2.2 mi. N, 7.25 mi. W Persimmon Gap Ranger Station, Harte Ranch, 3; 2.2 mi. N, 6.3 mi. W Persimmon Gap Ranger Station, Harte Ranch, 7; 0.1 mi. N, 1.5 mi. E Twin Peaks, Harte Ranch, 7; Cedar Creek, 0.75 mi. E Twin Peaks, Harte Ranch, 2; Cedar Creek, 0.8 mi. S, 0.4 mi. E Twin Peaks, Harte Ranch, 1.

Peromyscus leucopus texanus
(Woodhouse 1853)

The white-footed mouse was most abundant in lowland areas of creosote scrub, especially in places where vegetation (grasses, forbs) occurred among the creosote bushes. Pregnant females were examined in March (4 - 6 fetuses, crown-rump length, 3 - 19), May (3 - 6 fetuses, crown-rump length, 10 - 12), September (3 - 5 fetuses, crown-rump length, 11 - 16), and October (4 fetuses, crown-rump length, 4). Lactating females were taken in each of these months also. Males exhibited evidence of reproductive activity in all months of the year; measurements of testes ranged from 6 x 3 to 18 x 7.

Specimens examined (97).—0.3 mi. N, 2 mi. W Mountain Lodge, Harte Ranch, 1; 1.25 mi. S, 2.75 mi. W Mountain Lodge, Harte Ranch, 7; Crazy Windmill, 0.7 mi. S, 3.2 mi. W Mountain Lodge, Harte Ranch, 8; 1.5 mi. S, 2.75 mi. W Mountain Lodge, Harte Ranch, 7; 1.1 mi. S, 3.8 mi. W Mountain Lodge, Harte Ranch, 1; 1 mi. N, 0.5 mi. E Mountain Lodge, Harte Ranch, 1; Buttrill Spring, Harte Ranch, 6; 0.25 mi. N, 0.25 mi. E Key Place, Harte Ranch, 1; 0.4 mi. N, 0.8 mi. E Key Place, Harte Ranch, 2; 0.5 mi. S, 1.5 mi. E Key Place, Harte Ranch, 3; 0.25 mi. N, 1 mi. E Headquarters, Harte Ranch, 15; 1.25 mi. W Headquarters, Harte Ranch, 1; 0.75 mi. S Headquarters, Harte Ranch, 1; 1.25 mi. E Headquarters, Harte Ranch, 7; 2.5 mi. N, 1

mi. W Headquarters, Harte Ranch, 2; 4.25 mi. S, 1.75 mi. W Persimmon Gap Ranger Station, Harte Ranch, 3; Southeast Windmill, 5.1 mi. S, 0.5 mi. E Persimmon Gap Ranger Station, Harte Ranch, 2; 2.2 mi. N, 7.25 mi. W Persimmon Gap Ranger Station, Harte Ranch, 5; North Windmill, 1 mi. N, 7 mi. W Persimmon Gap Ranger Station, Harte Ranch, 11; 2.2 mi. N, 6.3 mi. W Persimmon Gap Ranger Station, Harte Ranch, 4; Coyote Tank, 0.25 mi. N, 6.6 mi. W Persimmon Gap Ranger Station, Harte Ranch, 9.

Peromyscus maniculatus blandus
Osgood 1904

This deer mouse was taken in lowland habitats, usually in areas that were relatively open with regard to vegetation. Pregnant females were collected in March (4 fetuses, crown-rump length, 4), August (4 fetuses, crown-rump length, 5; 3 fetuses, crown-rump length, 8), and September (5 fetuses, crown-rump length, 6; 6 fetuses, crown-rump length, 4). Measurements of testes of males obtained in several months were as follows: March, 10 x 6, 9 x 4; June, 8 x 5; August, 11 x 4; October, 10 x 5.

Specimens examined (26).—2.5 mi. N, 4 mi. W Mountain Lodge, Harte Ranch, 1; 0.7 mi. S, 3.2 mi. W Mountain Lodge, Harte Ranch, 2; 1.25 mi. S, 2.75 mi. W Mountain Lodge, Harte Ranch, 3; 1.1 mi. S, 3.8 mi. W Mountain Lodge, Harte Ranch, 1; 1.4 mi. N, 3.4 mi. E Key Place, Harte Ranch, 1; 0.25 mi. N, 1 mi. E Headquarters, Harte Ranch, 1; 1.25 mi. E Headquarters, Harte Ranch, 1; North Windmill, 1 mi. N, 7 mi. W Persimmon Gap Ranger Station, Harte Ranch, 2; Coyote Tank, 0.25 mi. N, 6.6 mi. W Persimmon Gap Ranger Station, Harte Ranch, 8; 2.2 mi. N, 6.3 mi. W Persimmon Gap Ranger Station, Harte Ranch, 6.

Peromyscus pectoralis laceianus
Bailey 1906

The white-ankled mouse was collected on a rocky slope with fairly open vegetation above the outflow from Buttrill Spring, as well as on a rock-strewn area on Rosillos Peak. A female obtained in October contained 4 fetuses (crown-rump length, 4). Measurements of testes of males taken in May ranged from 6 x 3 to 11 x 5; animals examined in August had testes that ranged in measurements from 10 x 5 to 14 x 8.

Specimens examined (17).—Buttrill Spring, Harte Ranch, 11; Rosillos Peak, Harte Ranch, 6.

Onychomys arenicola arenicola
Mearns 1896

Schmidly (1977) reported that Mearn's grasshopper mouse was extremely rare in the Big Bend region, based, in part, on only a single specimen known at that time from Big Bend National Park. This mouse was reported to occur in lowland habitats in association with *D. merriami* (Schmidly 1977). However, we also found this grasshopper mouse on sandy substrates, with open vegetation, in association with *D. ordii*. Pregnant females were captured in March (4 fetuses, crown-rump length, 6; 4 fetuses, crown-rump length, 12), July (4 fetuses, crown-rump length, 12), and August (4 fetuses, crown-rump length, 10). A lactating female was taken in September. Measurements of testes of males were recorded as follows: May, 9 x 5, 20 x 9; July, 11 x 6; September, 10 x 3, 7 x 3; November, 8 x 3. Young animals were observed in May, June, September, and November.

Specimens examined (13).—Mountain Lodge, Harte Ranch, 1; 1.3 mi. N, 4 mi. W Mountain Lodge, Harte Ranch, 1; 0.3 mi. N, 2 mi. W Mountain Lodge, Harte Ranch, 2; 2.5 mi. N, 4 mi. W Mountain Lodge, Harte Ranch, 1; 1.25 mi. S, 2.75 mi. W Mountain Lodge, Harte Ranch, 1; 1.5 mi. S, 2.75 mi. W Mountain Lodge, Harte Ranch, 3; Crazy Windmill, 0.7 mi. S, 3.2 mi. W Mountain Lodge, Harte Ranch, 2; Coyote Tank, 2.5 mi. N, 4 mi. W Persimmon Gap Ranger Station, Harte Ranch, 1; 0.1 mi. N, 1.5 mi. E Twin Peaks, Harte Ranch, 1.

Sigmodon hispidus berlandieri
Baird 1855

The hispid cotton rat was found commonly in thick vegetation in lowland areas, especially in the vicinity of earthen tanks and catch basins where water periodically accumulated. However, this mammal also occasionally was taken in open creosote shrub areas, as well as in rocky habitats, such as at the base of Chalk Ridge. Gravid females were observed in March (7 fetuses, crown-rump length, 3), August (8 fetuses, crown-rump length, 10), and September (6 fetuses, crown-rump length, 15). Males were reproductively

active throughout most of the year; measurements of testes ranged from 8 x 4 in March to 30 x 12 in September.

Specimens examined (40).—Mountain Lodge, Harte Ranch, 1; 1.25 mi. S, 2.75 mi. W Mountain Lodge, Harte Ranch, 1; Crazy Windmill, 0.7 mi. S, 3.2 mi. W Mountain Lodge, 5; Buttrill Spring, Harte Ranch, 4; 0.4 mi. N, 0.8 mi. E Key Place, Harte Ranch, 1; 0.25 mi. N, 0.25 mi. E Key Place, Harte Ranch, 2; 0.5 mi. S, 1.5 mi. E Key Place, Harte Ranch, 1; 0.1 mi. W Airport Lodge, Harte Ranch, 1; 0.75 mi. S Headquarters, Harte Ranch, 1; 0.25 mi. S, 1 mi. E Headquarters, Harte Ranch, 1; Coyote Tank, 0.25 mi. N, 6.6 mi. W Persimmon Gap Ranger Station, Harte Ranch, 4; 1.4 mi. N, 4.6 mi. W Persimmon Gap Ranger Station, Harte Ranch, 5; 2.2 mi. N, 7.25 mi. W Persimmon Gap Ranger Station, Harte Ranch, 5; 4.25 mi. S, 1.75 mi. W Persimmon Gap Ranger Station, Harte Ranch, 4; 5.1 mi. S, 0.5 mi. E Persimmon Gap Ranger Station, Harte Ranch, 2; 2.2 mi. N, 6.3 mi. W Persimmon Gap Ranger Station, Harte Ranch, 2.

Neotoma mexicana mexicana
Baird 1855

Only one specimen of the Mexican woodrat was obtained during this study. The animal was collected from among large rocks on Rosillos Peak.

Specimens examined (1).—Rosillos Peak, Harte Ranch, 1.

Neotoma micropus canescens
J. A. Allen 1891

The southern plains woodrat is well known for its habits of constructing "houses," or middens, consisting of piles of sticks, cacti, and debris (Schmidly 1977). However, we did not observe any such "houses" during our work in the area studied, although we searched constantly for these structures. These woodrats were associated mostly with creosote scrub-grassland habitats. Pregnant females were obtained in March (3 fetuses, crown-rump length, 30), May (3 fetuses, crown-rump length, 50), July (2 fetuses, crown-rump length, 25), and August (3 fetuses, crown-rump length, 40). A lactating female was taken in September. Some measurements of testes of adult males were recorded as follows: June, 18 x 8; July, 15 x 8, 15 x 10; August, 19 x 14, 17 x 8; September, 12 x 6; October, 15 x 6.

Specimens examined (25).—Mountain Lodge, Harte Ranch, 1; 1.3 mi. N, 4 mi. W Mountain Lodge, Harte Ranch, 7; 0.4 mi. N, 1 mi. W Mountain Lodge, Harte Ranch, 1; 1.5 mi. S, 2.75 mi. W Mountain Lodge, Harte Ranch, 3; 1.1 mi. S, 3.8 mi. W Mountain Lodge, Harte Ranch, 2; 0.25 mi. N, 1 mi. E Headquarters, Harte Ranch, 1; 0.25 mi. N, 0.25 mi. E Key Place, Harte Ranch, 2; North Windmill, 1 mi. N, 7 mi. W Persimmon Gap Ranger Station, Harte Ranch, 1; Coyote Tank, 0.25 mi. N, 6.6 mi. W Persimmon Gap Ranger Station, Harte Ranch, 1; 2.2 mi. N, 6.3 mi. W Persimmon Gap Ranger Station, Harte Ranch, 3; 4 mi. S Persimmon Gap Ranger Station, Harte Ranch, 1; 4 mi. S, 0.5 mi. E Persimmon Gap Ranger Station, Harte Ranch, 2; Southeast Windmill, 5.1 mi. S, 0.5 mi. E Persimmon Gap Ranger Station, Harte Ranch, 1.

Erethizon dorsatum epixanthum
Brandt 1835

Schmidly (1977) reported that the porcupine was increasing in both geographic range and numbers of animals in the Trans-Pecos. In December, we observed a porcupine along the road at a place near an earthen tank about 0.4 mi. N, 0.8 mi. E Key Place on the Harte Ranch. No specimens of this taxon were collected.

Specimens examined (0).

Canis latrans texensis
Bailey 1905

Coyotes were common in a variety of habitats throughout the study area. Sightings indicate these carnivores are abundant especially in the northern portion of Harte Ranch, such as in the vicinity of North Windmill. However, these mammals can be heard almost nightly from Mountain Lodge and along Chalk Ridge. No coyotes were collected during this study.

Specimens examined (0).

Urocyon cinereoargenteus scottii
Mearns 1891

Based on our observations of animals, common gray foxes are most abundant on the lower slopes north of the Rosillos Mountains. For example, animals were seen several times in the vicinity of Key Place and near Mountain Lodge. No specimens of this taxon were collected.

Specimens examined (0).

Bassariscus astutus flavus
Rhoads 1894

Ringtail sign (feces) was noted in numerous areas, especially in the vicinity of Buttrill Spring and along Chalk Ridge. It is assumed that the ringtail is present throughout the study area in rocky habitats.

Specimens examined (1).—Mountain Lodge, Harte Ranch, 1.

Procyon lotor mexicanus
Baird 1858

The unmistakable tracks of the common raccoon were seen in mud and sand along Cedar Creek at a place 0.75 mi. E Twin Peaks at the western boundary of the study area. This omnivorous mammal may be more common along watersheds in the region than our observations indicate. No specimens of this taxon were collected.

Specimens examined (0).

Mustela frenata neomexicana
(Barber and Cockerell 1898)

The long-tailed weasel is rare in the Trans-Pecos region of Texas (Schmidly 1977); it occurs mostly in areas close to permanent water.

Specimens examined (1).—0.75 mi. N Mountain Lodge, Harte Ranch, 1.

Mephitis mephitis varians
Gray 1837

Although common in Texas, the striped skunk is less numerous in parts of the Trans-Pecos region than elsewhere in the state (Schmidly 1977; Jones and Jones 1992). It occurs usually in association with agricultural areas and in the vicinity of human habitations. We observed striped skunks only on two occasions during this study.

Specimens examined (1).—Key Place, Harte Ranch, 1

Puma concolor stanleyana
Goldman 1938

The mountain lion is common in many parts of Big Bend National Park and the Trans-Pecos area (Waid 1990), as well as in some other parts of Texas (Bigony 1993). No mountain lions were collected or observed directly during this study. However we observed fresh tracks of a large and small animal (perhaps a female and cub) in the mud of a temporary pond at a place 4.25 mi. S and 1.75 mi. W Persimmon Gap Ranger Station.

Specimens examined (0).

Lynx rufus texensis
J. A. Allen 1895

Bobcats are fairly common in the Trans-Pecos region (Schmidly 1977), especially in the vicinity of rocky areas. We observed only two of these mammals during this study; both were seen along the road, one about 3 mi. E Mountain Lodge, and the other near the western boundary of Harte Ranch. No specimens of this taxon were collected.

Specimens examined (0).

Tayassu tajacu angulatus
(Cope 1889)

Herds of the collared peccary often were seen, indicating they are common in the study area. Signs (tracks, feces, rooted areas) and animals have been seen throughout the lowland portions of Harte Ranch. These animals were concentrated especially in arroyos and near sources of water in the area.

Specimens examined (1).—1.5 mi. N, 0.75 mi. E Mountain Lodge, Harte Ranch, 1.

Cervus elaphus nelsoni
Bailey 1935

An antlered male was observed in the area just to the northwest of Mountain Lodge. In addition, a cow and calf were seen in Nine Point Draw just outside of the western boundary of the study area. The elk observed at Harte Ranch may have wandered from the groups of these animals that have been introduced into either the Guadalupe or Davis mountains in recent times. No specimens of this taxon were collected.

Specimens examined (0).

Odocoileus hemionus crooki
(Mearns 1897)

Based on sightings, mule deer are common on the Harte Ranch. Animals (bucks, does, fawns) have been observed on numerous occasions in all habitats of the area, especially on the lower slopes and lowlands adjacent to the Rosillos Mountains. Signs (tracks, feces) and these animals seem common especially adjacent to sources of water. No specimens of mule deer were collected.

Specimens examined (0).

Antilocapra americana mexicana
Merriam 1901

The creosotebush-grassland flats in the eastern portion of the study area seemingly are the preferred habitats of pronghorn on the Harte Ranch. Pairs and small groups of up to six animals have been seen in this region. No specimens of this taxon were collected.

Specimens examined (0).

Ammotragus lervia
(Pallas 1777)

A male Barbary sheep was observed in the high country south of Mountain Lodge and in the vicinity of Rosillos Peak. Signs (tracks, feces) of this introduced species (native of North Africa) have been observed above Buttrill Spring. According to Traweek (1985), the total population of Barbary sheep in the wild in Texas exceeds 5000 animals. No specimens of Barbary sheep were collected during this study.

Specimens examined (0).

DISCUSSION

Schmidly (1977) listed a total of 96 species of mammals that may have inhabited the Trans-Pecos area within the past 100 years; of those 96 species, 42 were found to occur on the Harte Ranch section of Big Bend National Park. These 42 species represent 60% of the 70 species of mammals known to occur within Big Bend National Park in its entirety (Borell and Bryant 1942; Easterla 1973; Anonymous 1989; Jones et al. 1993). Given the relatively small area of the Harte Ranch, these 42 species indicate a considerable amount of diversity. Furthermore, it is probable that further field research in the area will result in the discovery of additional species of mammals that inhabit the Harte Ranch section of Big Bend National Park.

Other reports on the bats of Big Bend National Park (Easterla 1973) and adjacent areas (Schmidly 1977, 1991; Yancey 1996) suggest a considerably more abundant and diverse bat fauna in the Big Bend region than was noted during this study. The species composition of a bat community is influenced by the availability of roosting sites (day, night), as well as the abundance

of food items and permanent sources of water (Findley 1993), and each of these factors may have played a role in the scarcity of bats at Harte Ranch. We have observed that some roosting places for bats, especially man-made structures, in the area have been impacted greatly by human disturbances. Vandalism and collapse of some of these structures have reduced the numbers of roosting sites available for this important group of mammals.

Although elk and Barbary sheep were observed in the area, the paucity of introduced mammals is rather interesting. For example, it is noteworthy that no specimens of either *Mus* or *Rattus* were obtained during the time of our intensive sampling of mammals in the area.

Some interesting trends in the composition of the mammalian fauna of the Harte Ranch area were noted during the course of our study. For example, during the first year of fieldwork, specimens of *Sigmodon* and *Peromyscus* were difficult to obtain anywhere. However, these particular kinds of small mammals seemed relatively abundant in appropriate habitats during subsequent years of sampling. Incidentally, it is our perception that many species of mammals have become more abundant and widespread during the tenure of our studies at Harte Ranch. This could be related to the removal of livestock and corresponding recovery of habitats.

Based on some of the aforementioned comments in the accounts of species, we were impressed with the levels of wariness exhibited by some mammals, such as desert cottontails and members of the family Sciuridae. These habits of wariness by these mammals could be the result of pressures from predators, such as coyotes, bobcats, hawks, owls, and snakes. Also, we noted throughout our study that casings of expended firearm cartridges were common along the main road through the Harte Ranch.

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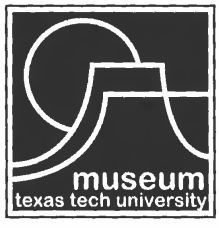

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